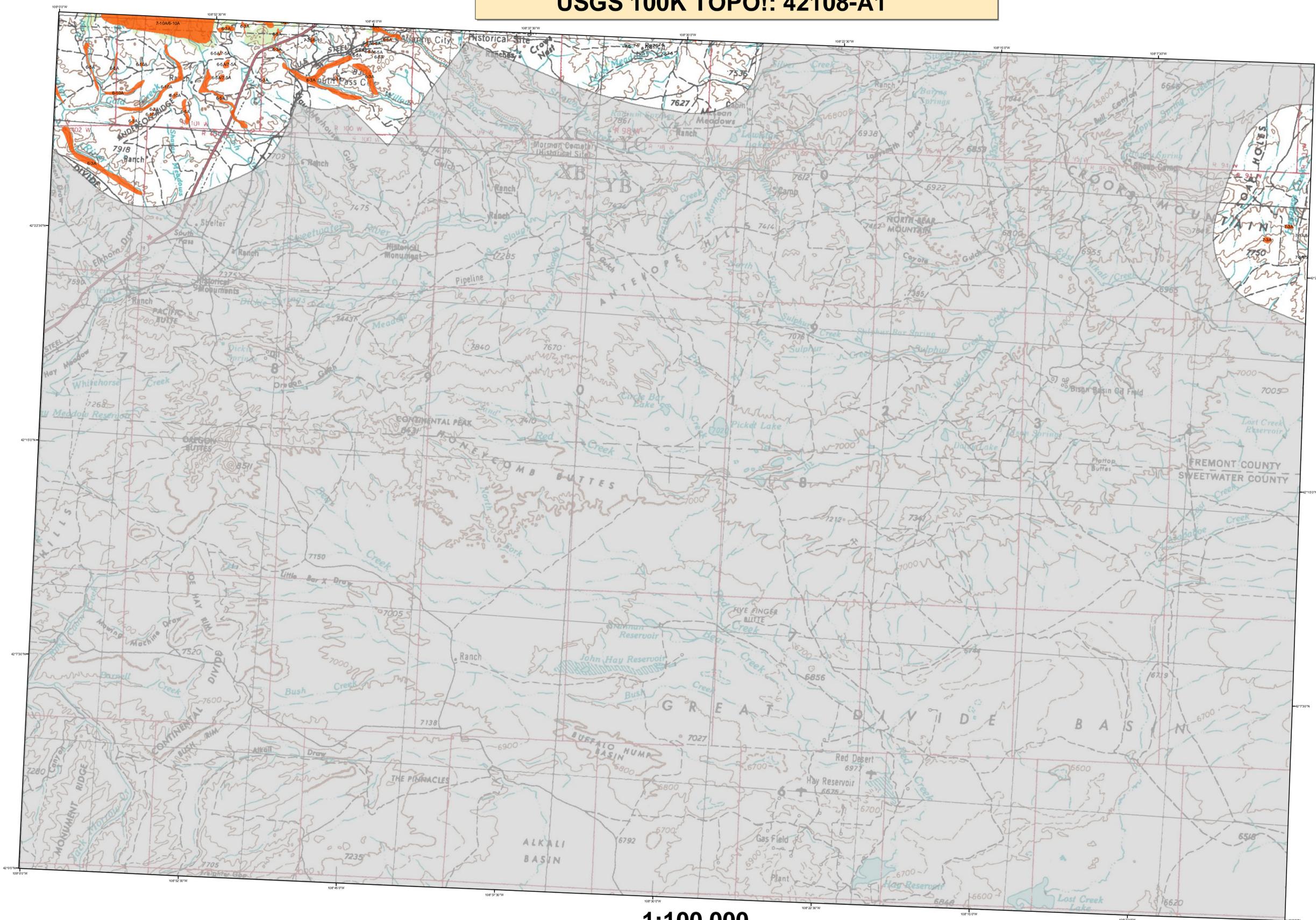


# 2010 Aerial Insect and Disease Survey South Pass, Wyoming USGS 100K TOPO!: 42108-A1



1:100,000

## Legend

Code	Causal Agent(s)	Primary Host	Code	Causal Agent(s)	Primary Host
1	Douglas fir beetle	Douglas fir	50	White pine blister rust	Lodgepole Pine
2	Englemann spruce beetle	Englemann spruce	51	White pine needle scale	5-needle Pine
3	Mountain pine beetle	Ponderosa Pine	52	White pine sawfly	Softwoods
4	Mountain pine beetle	Lodgepole Pine	53	Elyrodia	Ponderosa Pine
5	Mountain pine beetle	5-needle Pine	54	Includes #05, 00 & 05	All Tree Species
6	Western pine beetle	Ponderosa Pine	55	Chemical damage	All Tree Species
7	White fir	Douglas fir	56	Air pollution	All Tree Species
8	White fir	Douglas fir	57	Lophodermium	Softwoods
9	Douglas fir engraver beetle	Subalpine Fir	58	Rhabdocline pseudotsugae	Douglas fir
10	Douglas fir engraver beetle	Subalpine Fir	59	Lophodermium arcauata	Softwoods
11	Western balsam bark beetle	Softwoods	60	Lectosporium	Softwoods
12	Undersized bark beetle	Softwoods	61	Lophodermium concolor	Softwoods
13	Pine engraver	Lodgepole Pine	62	Needle cast (Hypodematiaceae)	Softwoods
14	Pine engraver	Ponderosa Pine	63	Root Rot	All Tree Species
15	Ponderosa pine needle miner	Lodgepole Pine	64	Undersized disease	Softwoods
16	Lodgepole pine needle miner	Ponderosa Pine	65	Winter damage light	All Tree Species
17	Jack pine budworm	Jack Pine	66	Winter damage medium	All Tree Species
18	Jack pine budworm, light defol.	Douglas fir	67	Winter damage heavy	All Tree Species
19	Jack pine budworm, medium defol.	Douglas fir	68	Winter damage medium	All Tree Species
20	Jack pine budworm, heavy defol.	Douglas fir	69	Winter damage heavy	All Tree Species
21	Douglas fir tussock moth	Douglas fir	70	Pinus black stain	Common Pinus
22	Pine butterfly	Ponderosa Pine	71	Pinus	All Tree Species
23	Pine looper	Ponderosa Pine	72	Pinus	All Tree Species
24	Pine looper	Hardwoods	73	Pinus	All Tree Species
25	Leaf beetle	Hardwoods	74	Pinus	All Tree Species
26	Leaf beetle	Hardwoods	75	Pinus	All Tree Species
27	Leaf beetle	Hardwoods	76	Pinus	All Tree Species
28	Leaf beetle	Hardwoods	77	Pinus	All Tree Species
29	Leaf beetle	Hardwoods	78	Pinus	All Tree Species
30	Leaf beetle	Hardwoods	79	Pinus	All Tree Species
31	Leaf beetle	Hardwoods	80	Pinus	All Tree Species
32	Leaf beetle	Hardwoods	81	Pinus	All Tree Species
33	Leaf beetle	Hardwoods	82	Pinus	All Tree Species
34	Pine needle-shaft miner	Ponderosa Pine	83	Pinus	All Tree Species
35	Pine needle-shaft miner	Ponderosa Pine	84	Pinus	All Tree Species
36	Pine needle-shaft miner	Ponderosa Pine	85	Pinus	All Tree Species
37	Cankerworm	Hardwoods	86	Pinus	All Tree Species
38	Variable oak leaf caterpillar	All Tree Species	87	Pinus	All Tree Species
39	Undersized defoliator	All Tree Species	88	Pinus	All Tree Species
40	Heterodactylus artemisiae (Fomes artemisiae)	Softwoods	89	Pinus	All Tree Species
41	Heterodactylus artemisiae (Fomes artemisiae)	Softwoods	90	Pinus	All Tree Species
42	Amphirrhiza (Amphirrhiza melles)	Softwoods	91	Pinus	All Tree Species
43	Phoradendron schweinitzii	Softwoods	92	Pinus	All Tree Species
44	Phoradendron	Softwoods	93	Pinus	All Tree Species
45	Cylindropuntia	All Tree Species	94	Pinus	All Tree Species
46	Western gall rust	Unknown	95	Pinus	All Tree Species
47	Comandra rust	Unknown	96	Pinus	All Tree Species
48	Strobiliform rust	Lodgepole Pine	97	Pinus	All Tree Species

## USGS 100K Quad - Location Map



## How Aerial Surveys Are Conducted

Data represented on this map are based on aerial observations manually recorded onto a map. This procedure is considered both an art form and a form of scientific data collection, and is highly subjective. An observer only has a few seconds to recognize the color difference between healthy and damaged trees of different species; diagnose causal agents correctly; estimate intensity; delineate the extent of damage; and precisely record this information on a georeferenced map. Air turbulence, cloud shadows, distance from aircraft, haze, smoke, and observer experience can all affect the quality of the survey. These data summaries provide an estimate of conditions on the ground and may differ from estimates derived by other methods.

Aerial surveys provide information on the current status for many causal agents, and are important when examining insect activity trends by comparing historical and current survey data over large areas.

Overview surveys are a 'snap shot' in time and therefore may not be timed to accurately capture the true extent or severity of a particular disturbance activity. Aerial surveys can be thought of as the first stage in a multi-stage sampling design. Other remote sensing approaches, including aerial photography, electro-optical sensors, and specially designed aerial surveys with modified flight patterns, can be used to more accurately delineate the extent and severity of a particular disturbance agent. The preceding methods are often more costly than overview surveys, and are generally reserved to address situations of sufficient environmental, economic, or political importance.

## DIRECT ALL INQUIRIES TO:

**Wyoming State Forestry Division**  
1100 West 22nd Street  
Cheyenne, Wyoming 82002

**USDA Forest Service, Region 2**  
Renewable Resources  
Forest Health Management  
PO Box 25127  
Lakewood, Colorado 80225

**DISCLAIMER**

Forest Health Protection (FHP) and its partners strive to maintain an accurate Aerial Detection Survey (ADS) Dataset, but due to the conditions under which the data are collected, FHP and its partners shall not be held responsible for missing or inaccurate data. ADS are not intended to replace more specific information. An accuracy assessment has not been done for this dataset; however, ground checks are completed in accordance with local and national guidelines <http://www.fs.fed.us/foresthealth/aviation/qualityassurance.shtml>. Maps and data may be updated without notice. Please cite "USDA Forest Service, Forest Health Protection and its partners" as the source of this data in maps and publications.

Due to the nature of aerial surveys, the data on this map will only provide rough estimates of location, intensity and the resulting trend information for agents detectable from the air. Many of the most destructive diseases are not represented on this map because these agents are not detectable from aerial surveys. The data presented on this map should only be used as a partial indicator of insect and disease activity, and should be validated on the ground for actual location and causal agent. Shaded areas show locations where tree mortality or defoliation were apparent from the air. Intensity of damage is variable and not all trees in shaded areas are dead or defoliated.

The insect and disease data represented on this map are available digitally from the USDA Forest Service, Region Two Forest Health Management group. The cooperators reserve the right to correct, update, modify or replace GIS products. Using this map for purposes other than those for which it was intended may yield inaccurate or misleading results.

Map Created November 1 2010  
Projection: UTM NAD83 Zone 13  
Author: J. Ross, USDA Forest Service

A data dictionary and digital copies of this map and the insect and disease data are available at: <http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/>